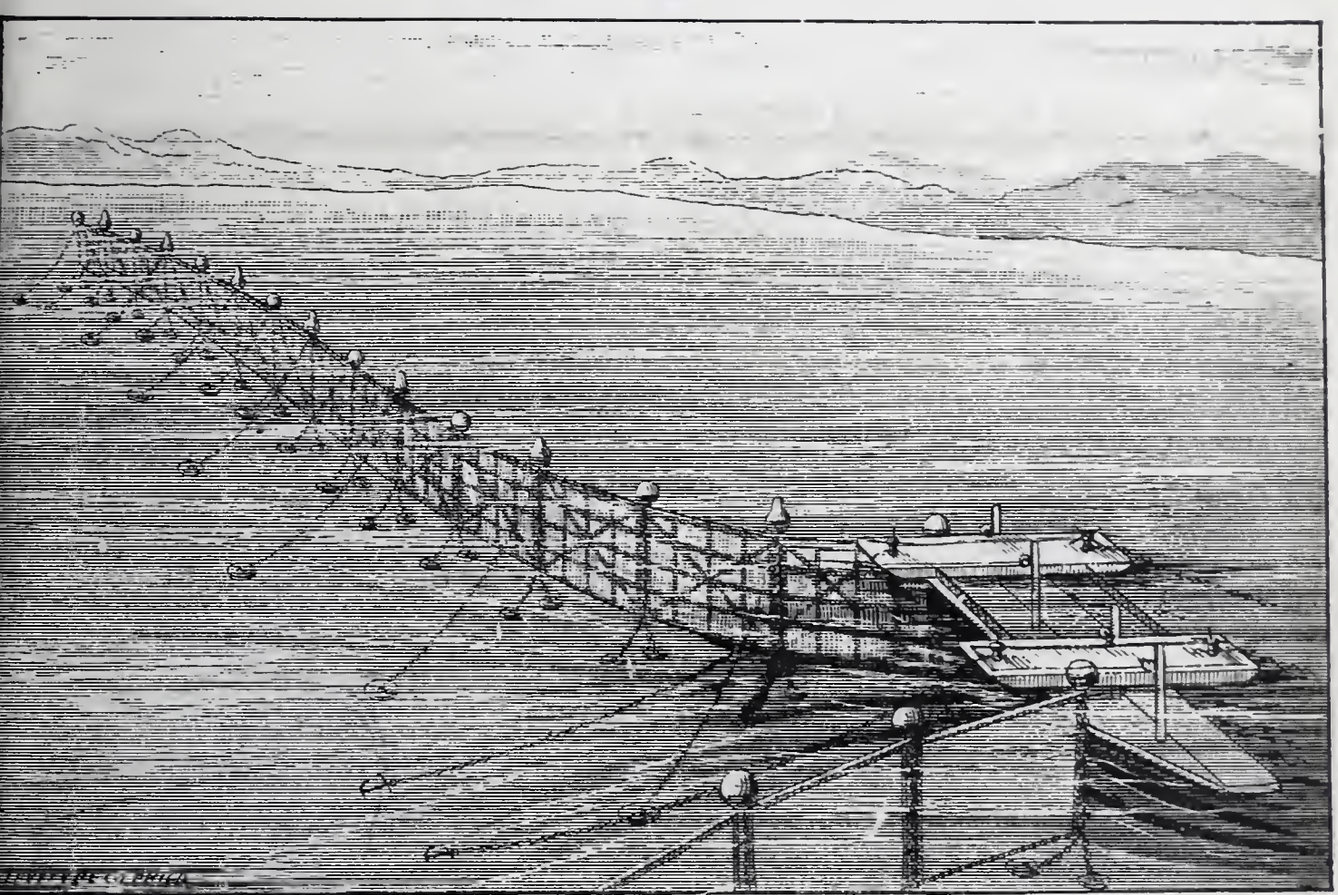
Haupt 7

TO ENGINEERS, CONTRACTORS AND DREDGING COMPANIES.

HAUPT'S AUTOMATIC SYSTEM FOR IMPROVING RIVERS AND HARBORS, AND OF MAINTAINING THE CHANNELS CREATED BY CURRENT CONCENTRATION. LETTERS PATENT No. 393,548, DATED, APRIL 6TH, 1886.



☞ RIGHTS FOR SPECIAL LOCALITIES FOR SALE. ☜

The cost of dredging by utilizing the force of the current has been found by foreign experience to be but ten per cent. of that by the usual plant. Any company working under these patents will possess great advantages over all competitors. The system can be ADAPTED TO ANY WIDTH OF CHANNEL AND NEED NOT INTERFERE WITH NAVIGATION. It is designed to fulfill the following

REQUIREMENTS.

It should not rest upon the bottom, thus producing pressure and undermining where it would be injurious, nor project above the surface, to be subject to the direct action of the winds, waves and ice. It should be flexible and adjustable so as to be set at the proper angle to produce the desired result. It should consist of a

repetition of units or parts by which the system may be indefinitely extended and yet be so light as to be readily handled, and so strong as to resist the sub-surface action of waves and currents. It should occupy a minimum of space and so disturb to the least extent the regimen of the river and harbor, and should be of materials readily obtainable and not attacked by the teredo.

All of these conditions are believed to be met in this system, which is intended not only to concentrate the current by deflecting it LATERALLY upon the obstruction, but also greatly to increase the bottom velocities and consequent scour by a VERTICAL deflection of the maximum force of the current, which is located at or near the surface.

THE FORCES AVAILABLE.

The SCOURING force of the current is proportioned to the SQUARE OF THE VELOCITY.

The TRANSPORTING or carrying capacity varies as the SIXTH POWER OF THE VELOCITY. Hence, the importance and enormous advantage of increasing the BOTTOM velocities, both to effect a scour and to prevent deposits. This is readily accomplished by the simple vertical deflectors shown in the cut. The following table gives the velocities required to start different grades of materials:

APPROXIMATE BOTTOM VELOCITIES OF FLOW IN CHANNELS, AT WHICH THE FOLLOWING MATERIALS BEGIN TO MOVE.

Feet per sec.	Miles per hour.	
.25	.17	Microsocopic sand and clay.
.50	.34	Fine sand.
1.00	.68	Coarse sand and fine gravel.
1.75	1.19	Pea gravel.
2.00	1.39	Rounded pebbles, 1 inch in diam.
3.00	2.04	Small stones, 1¾ inch diam.
3.33	2.30	Flint stones, size of hen's eggs.
5.00	3.41	2-inch square brickbats.

DESCRIPTION OF THE INVENTION.

This invention consists of an adjustable, deflecting shield, of any form, material or size, suitable to the locality and amount of work to be done, suspended by buoys, floats or barges, so that its up-stream edge shall be at or near the surface of the

water, while the lower or down-stream edge may be dropped and held at any suitable angle; vertically, if desired. The shields are intended to be arranged in one or more rows either transversely or obliquely to the current, and to have sufficient length to cover, either in whole or part, the swath or path of the channel to be created. These will then be made up in sections of suitable lengths to be readily handled.

When, in broad bays or estuaries, it may be desired to contract the current laterally, other shields may be hung vertically from the outside of the end boats—as curtains—or detached flexible curtains or deflectors may be anchored to buoys or floats extending to distant points and so greatly augment the prism of water discharging through the gorge. By this means a channel of 30 feet depth and of considerable length may readily be created and maintained.

By this system it will be seen that any desired head of water which the locality will permit may be utilized directly upon the obstruction to be removed or the channel to be maintained, and that it may be applied in positions where the ordinary dredging plant would be wholly impracticable. Even where a channel is dredged in the usual way, the natural agencies if not modified by some such means, will in many cases restore the original condition of the bed of the stream.

We believe, therefore, that this device will save a very large annual expenditure for dredging and re-dredging, and effect a radical improvement in the channels of rivers wherever there is an available current flowing over an alluvial bottom.

Control the current and you curb the stream.

For specifications and claims see patent.

For royalties and terms address the patentee. (OVER).

N. B.

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